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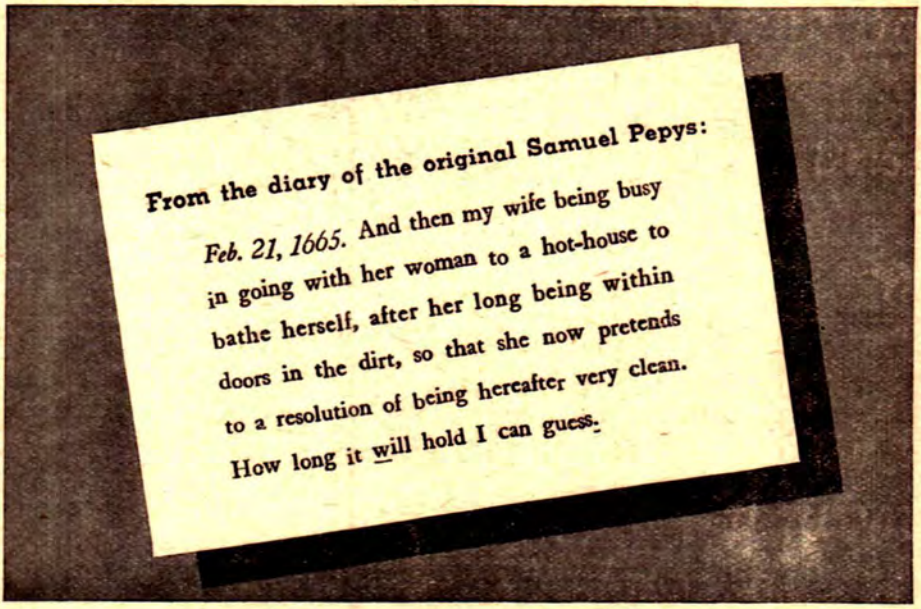

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VOL. IV MEDICAL JOURNAL No. 3

Oslerian Address*

DR. J. A. MACGREGOR, M.D., LL.D., F.R.C.P. (Can.)
Honorary President of the Osler Society of London

Mr. President and Members of this Society:

It is an honour and a privilege which have come to me this evening.

It is indeed a great honour to be asked to address this Society, and it is even a greater privilege to entwine my remarks about the memory of the man whose name this Society has adopted. To do justice to both is all but a Herculean task.

It has not been the privilege of any one of us to have a personal acquaintance with him, but he has left a legacy which in all parts of our lives may be utilized in shaping our ends and directing our channels of thought and our action.

His personal influence, brought to us through those who enjoyed personal contact, and through his varied and voluminous writings, still maintains an atmosphere well permeated with that unusual personality owning a name which may well be classed with that of Harvey, Laennec, Jenner, Pasteur, Koch and Lister.

His work in shaping the destiny of American and British medical science is of great historical importance and his influence will long be an integral part of medical progress in every country. One is awed at the thought that so much could be accomplished in so short a period of time in directing the medical mind away from the fallacious conceptions and dogmatism of his time into more rational and more productive channels of thought.

Through the avenues of his contacts who became imbued with the motive of this master mind, his spirit and teaching were carried into many fields. The secret of this achievement was not only a profound knowledge of the problems to which he directed his effort but a spirit of investigation and a human sympathy in all his dealings with his associates, ever exemplifying a philosophy in which service, faith, initiative and work were the foremost components.

Duty brought his father and mother to settle in Ontario while the country was little more than a wilderness. Born of staunch stock and spending his childhood in the school of the great outdoors, with more or less responsibility imposed on him, of necessity he was obliged to devise his own wholesome play. Stripped of all artificiality, from this school emanated the youth—virile and inured to hardship and privation incident to the early settler.

*Delivered at the annual banquet of the Osler Society of London.

Free range to his youthful activity on frequent occasion got him, and often a number of his companions, into trouble at school when their boyish pranks were not appreciated by masters devoid of both understanding and a sense of humor.

He is described as being an "insufferable pest" to his masters and the matrons of the school to which he was consigned. He was expelled from one school, numbered among a group known as "Barrie's Bad Boys," and on one occasion his antics landed himself and nine boon companions in jail where they spent three days and were let off with a reprimand and nominal fine of one dollar. This element of mischief-making was never, even in later life, quite subdued, for he was forever playing practical jokes on his friends and colleagues.

But his parents were in no way perturbed over these escapades, and their faith was well justified. With all his youthful adventures followed by frequent canings, and no doubt the latter were more frequently deserved than not, we find him in his later "teens" the embodiment of manliness, culture and refinement, and the most potent influence for good in the school.

In scholarship and sports he was a leader and his strong character stood out at all times.

It is no doubt to the good fortune of contacting, during this "teen" period, two men, Father Johnston and Doctor Bovell, that his future was so greatly influenced. Through the former he was introduced to Sir Thomas Browne's "Religio Medici." From this work and his two friends he, at 17, had already caught a new inspiration.

Doctor James Bovell, a practitioner in Toronto and a teacher in the Toronto Medical School, a little later came into the life picture and, with Father Johnston, wove a destiny about the youth, the latter grounding his spiritual associations and the former awakening an interest in "things."

Later he entered Trinity College with the intention of pursuing a course in divinity, but from this he was diverted into medicine by Doctor Bovell who himself, curiously enough, contemplated giving up medicine for the church. Taken under Doctor Bovell's wing, he lived at Bovell's home for some time and he had an unusual opportunity of pursuing his bent for natural history and for microscopic and other investigation. He also was privileged to browse about Doctor Bovell's library, which contained a choice and varied collection of books. Above all, he contacted the man.

Following a short period spent at the Medical School of Toronto, it was deemed by Doctor Bovell that this school did not afford facilities for the pursuits of so promising a student and he was reluctantly pursuaded to proceed to McGill University of Montreal.

It was a curious, unaccountable but staunch friendship this between Johnston, Bovell and this young naturalist and student, but out of it evolved a great personality and a great leader.

At Montreal a third great friend and mentor in this young man's

life was met in the person of Dr. R. P. Howard, and it was from him that he gained his first insight into clinical medicine in the wards of the Montreal General Hospital.

Then, following his graduation, an opportunity to visit London brought him under the influence of Burdon Sanderson, with whom he spent some months studying physiology. Later he went to Vienna and Berlin and returned to Montreal. During his wanderings he had acquired as usual a host of new friends.

Soon he was invited to take charge of the lectures in physicology, and this subject in his handling soon became an attractive study. At 26 he was appointed Professor of Physiology. Shortly after this an appointment as Pathologist was proffered and following rapidly on the heels of this appointment he was made full physician to the hospital. The promotions being made over the head of three former assistant physicians to the hospital were the subject of much criticism but it was short-lived as neither envy nor malice could thrive for long in his presence.

His triumphal successes in Philadelphia and Baltimore and later the crowning opportunity—his selection to succeed his former teacher and friend, Burdon Sanderson as Regius Professor of Medicine at Oxford, are milestones in a brilliantly successful career.

During his school and early university days his expeditions in search of specimens for his natural history were successful in accumulating a great collection exemplifying botanical, entomogical, ornithological, geological and related and unrelated branches of science. Not only were these brought together and preserved but extensive notes were attached and papers on these multifarious subjects were published in various scientific and other magazines. The amount of labor expended may to some extent be measured by the fact that much material contained was first-hand observations and the papers were usually profusely illustrated by his own hand. Many of these papers covering general scientific subjects were published in the German and other languages.

His pathological excursions took him into the realm of veterinary science and even farther afield and his observations and discussions always carried enlightenment.

Many of the most important of his contributions appeared as unsigned editorials or book reviews. For this an innate diffidence was more than probably responsible. A mere catalogue of these papers and essays covers many pages and the diversity of subjects is phenomenal. This list of books and articles exceeds 730 titles in the 49 years from 1870 to 1919.

The range of his contributions to clinical medicine is equally imposing, not to mention his more elaborate "Principles and Practice of Medicine" and the "System of Modern Medicine" in 6 volumes, which he edited and to which he contributed. The former of these is easily the best and most popular text-book of the time. This was revised by himself to the seventh edition and by himself in conjunction with Doctor McCrae through two subsequent editions.

Many subjects were by his discernment brought out of chaos and described as entities for the first time, e.g., the visceral lesions of the erythema group, family recurring epistaxis due to telangiectases, chronic cyanosis with polycythaemia and enlarged spleen and chronic infective endocarditis, to mention only a few of the more important ones.

His wide knowledge of literature, ancient and modern, is everywhere evidenced in his writings. Biography, general and medical history, obituaries, memorial lectures, reviews and addresses scintillated with scholarship and his masterful style lifted his contributions into a "literature of power."

THE MAN

Possessed of a distinctive appearance, a joyous temperament, a stimulating personality, blithe manners, always generous in his criticism of everything and everybody, a swiftness and surety of thought and speech founded on careful training and a profound knowldege of his subject, with a boundless enthusiasm, a strong sense of humor and marvellous human sympathy, he attracted to himself adults and children alike. He continually made new friends, but he never forgot the old.

His later years were torn by the untimely loss of his only son and child in the Great War, but it did not break "the spirit that befits the man." When he died he was easily the greatest and most beloved physician of our time.

This and more is Osler and whether we today are conscious of it or not, as we pursue our studies we imbibe the fruit of the progressive impetus given by this inspiring teacher to medicine and to the world, and we bow our heads to "this modern Apollo."

I cannot do better in closing than quote to you this appreciation by Dr. W. S. Thayer, a colleague, himself recently deceased.

OSLER

"An eye whose magic wakes the hidden springs
Of slumbering fancy in the weary mind.
A tongue that dances with the ready word
That like an arrow seeks its chosen goal,
And piercing all the barriers of care,
Opens the way to warming rays of hope.
A presence like the freshening breeze that as
It passes, sweeps the poisoned cloud aside.
An ear that, 'mid the discords of the day,
Swings to the basic harmonies of life.
A heart whose alchemy transforms the dross
Of dull suspicion to the gold of love.
A spirit like the fragrance of some flower
That lingers around the spot that this has graced,
To tell us that although the rose be plucked
And spread its perfume throughout distant halls,
The vestige of its sweetness quickens still
The conscience of the precinct where it bloomed."

*The Evaluation of the Surgical Risk and and the Choice of Anaesthetic to be Used

ANGUS GRAHAM, M.D.
Assistant in Anaesthesia, Victoria Hospital

THE subject which I have been given to discuss is the evaluation of the surgical risk and choice of the anaesthetic to be used. The actual evaluation of the surgical risk with regard to the accepting or rejecting for operation is a duty seldom asked of the anesthetist, because most cases are considered operable before the anesthetist is called. But the choice of the anaaesthetic to be used should be the first function of the anaesthetist, second only in importance to the skillful administration of the method of choice.

In the choice of the anaesthetic to be used, I try to follow this plan. The first in importance is safety to the patient. Second, which method will allow the surgeon to perform the operation with the greatest ease and with the least trauma. Last in importance to be considered is the comfort of the patient, that is, the ease and pleasantness of the induction and recovery.

I could easily enumerate the contra-indications of the various methods used, but I would rather in a brief way attempt to explain some of the principles involved in the production of anaesthesia by the common drugs used today, and show how the anaesthetist is influenced by these actions and side actions in choosing the anaesthetic best adapted to the particular operation and patient in question.

Of the many drugs and methods used today, I think four methods alone constitute 95% or more of all the anaesthetics administered. It will be these that I will consider chiefly. They are, namely, ether anaesthesia, gas-oxygen anaesthesia, spinal anaesthesia, and regional or local anaesthesia.

First we will consider the inhalation class of anaesthetics commonly used, namely, ether and gas-oxygen. Both of these drugs are inhaled and gain entrance to the blood stream through the alveolar membranes of the lungs. From this point on, their mode of production of anaesthesia is entirely different. Ether is of the lipoid solvent type and produces its anaesthesia by attacking the lipoids contained in the various tissues of the body. The nervous systems, being rich in these substances, are attacked to a greater degree, resulting in anaesthesia, but the liver and kidneys which are relatively rich in lipoids are also attacked, resulting in some disorganization of their specialized function. This side action of ether, and more so of chloroform, makes this type of anaesthesia less desirable in cases of liver and kidney disease. An-

*Read at Victoria Hospital Staff Meeting for November, 1933.

other characteristic of ether is its irritant action on the mucous membrane of the respiratory tract, resulting in a marked increase in mucous secretion. This action rather contra-indicates ether as a method of choice in cases of suffering from pulmonary diseases of any kind.

Now with regard to gas-oxygen anaesthesia, nitrous oxide as used in anaesthesia is an inert gas, depending entirely for its action upon the fact that it is very many times more soluble in the blood than is air or oxygen. Thus, when this gas is presented to the alveolar membrane, it is absorbed into the blood, crowding out the oxygen to any desired degree, and a condition of sub-oxaemia results.

It is a physiological fact that the oxygen requirement of nervous tissue is very much greater than that of other tissues; hence, the function of the central nervous system is the first to be affected resulting in anaesthesia, and muscular tissue including the heart muscle is the last to suffer from restriction of oxygen supply.

The margin of anaesthesia with gas-oxygen is the difference in oxygen requirement between the higher centres having to do with consciousness and the lower centres having control of the more primitive and stable functions of respiration, cardiac control, etc. Oxygen is always administered along with nitrous oxide when prolonged anaesthesia is desired, and a percentage mixture is used which temporarily suspends consciousness but allows the vital centres of the brain to continue to function perfectly. Every case has its own optimum mixture of the two gases, which the well trained anaesthetist discovers within the first few minutes of administration. After this, this mixture can usually be maintained throughout the remainder of the anaesthesia with only occasional variations governed by accurate recognition of the signs of oxygen want. I would like to say here that I believe gas-oxygen anaesthesia should only be administered by a trained anaesthetist who has a sound knowledge of the phenomena of anoxaemia and is skilled in the handling of the gas machine.

As I stated before, nitrous oxide is a chemically inert gas having no side actions which would result in impaired function of the special organs, such as liver, kidney, etc., and can be administered with safety in cases which show marked pathology of these organs.

The effect of gas-oxygen on blood pressure is usually an early and transitory rise of 20 m.m's. of Hg. This can have no harmful effect whatever and, if anything, bolsters the patient's circulation against the shock of major surgery. Nitrous oxide is non-irritating to the respiratory membranes and can be used without hesitation in all pulmonary diseases, either acute or chronic. Mucous production in the respiratory tract is seldom seen, hence atropine administration is unnecessary.

While prolonged ether anaesthesia produces a falling systolic and a diminishing pulse pressure, Nitrous oxide has no appreciable effect on the blood pressure through prolonged anaesthesia, providing optimum mixture is maintained. Hence surgical shock is a very much less frequent occurrence under nitrous oxide anaesthesia than under any other type of anaesthesia used.

I might mention here the importance of the early recognition and early treatment of surgical shock. The remote consequences of this condition are perhaps not fully appreciated. Surgical shock is not merely a condition that occurs during operation or shortly following, which the patient either succumbs to or recovers from in a few hours. The immediate mortality from shock is small, but the deaths which occur during the first post-operative week, which are more or less traceable to surgical shock, are many. From a careful study of post-operative complications it has been found that these complications seem to arise chiefly in cases which showed a considerable depress of surgical shock during or following operation.

A worker who has made a careful study of this problem in many thousand cases has summarized his observations as follows: "If during operation the systolic blood pressure drops to 80 m.m.'s or less and is falling, and if the pulse pressure diminishes to 20 m.m.'s or less, and if the pulse rate is 120 or more and is rising, then the patient is entering frank shock, and if the condition is not treated within two hours by intravenous saline, glucose, or whole blood, then 75% die within the first week following operation from one of the several conditions associated with lowered vitality, such as paralytic ileus, acute dilatation of the stomach, thrombosis embolus, hypostatic congestion of the lungs, kidney insufficiency, etc.

I bring this question of shock up in this paper merely to show the part the anaesthetic has to play in this connection. While the operation with its attendant manipulation and haemorrhage produces shock, still the anaesthesia may either fortify the patient or weaken his resistance against the circulatory depression which constitutes shock. With ether anaesthesia, shock is not an uncommon occurrence, while with gas-oxygen anaesthesia shock is seldom seen. This has been demonstrated experimentally as follows: Histamine is a drug which will produce a condition resembling very closely surgical shock. It has been demonstrated that an etherized dog can be put into shock with about one-tenth the dose of histamine necessary to produce the same degree of shock in a gas-oxygen anaesthetized dog.

I might mention here that the only way that I know of discerning shock in its early stages during operation is by the action of the blood pressures. As a matter of fact, shock can be predicted at least 20 minutes to half an hour before it actually occurs by the frequent checking of the blood pressures during the operation. In the ordinary run of operations lasting three-quarters of an hour or less, shock is seldom encountered, but in the prolonged extensive procedures I think the anaesthetist should check the blood pressure at five-minute intervals or less, and in such cases the anaesthetic of choice is unquestionably gas-oxygen over all other types.

There is no method of anaesthesia, in my opinion, which is so completely under control as nitrous oxide and oxygen. In cases of emergency that occur during an operation, the anaesthetist can lift the

patient from fourth stage anaesthesia to a very light first stage of anaesthesia in less than one minute, and have the anaesthetic agent washed from the blood and replaced by 100% oxygen in two or three minutes. The latest type gas oxygen machines give the anaesthetist wonderful control. They are accurate in the mixture of gases delivered to within 1% error. A patient who is in fourth stage anaesthesia with arrested respiration can be completely washed of the anaesthetic agent, and the blood saturated with oxygen or oxygen-carbondioxide mixture without a single respiratory effort on the part of the patient, by using direct insufflation under controlled pressure.

It is always gratifying to me to see a patient wide-awake and responsive to questions two or three minutes after the last skin suture is in place following a major surgical operation. I feel that the anaesthetic and its consequences are over and that the patient has nothing to recover from now but the operation. It can be seen that nitrous oxide-oxygen appears to be without undesirable side actions and is unquestionably the most controllable anaesthetic we have. These two features alone should make it the anaesthetic of choice in all cases which fall into the group of questionable or bad risks. There is one drawback to gas anaesthesia, namely, that complete flascidity of the musculature of the body is not always attained. This is of no importance except in abdominal work at certain stages, such as packing off viscera, or sewing the peritoneum on closure. This complete relaxation, when necessary, can be accomplished in two ways: first, by addition of a small amount of ether to the mixture of gases at the time when most relaxation is needed. Second, by the method which I have used for the past six or seven years, that is, of blocking the motor nerves to the abdominal wall by the injection of ½% novocaine solution in the fascia in about two or three places between the anterior and superior spine and the rib margin, and also one or two injections into the rectus sheath just below the umbilicus. This is only necessary in muscular, robust individuals, and allows a lighter and safer plane of anaesthesia throughout the operation.

A very noticeable feature of gas-oxygen anaesthesia is the relative absence of post-operative vomiting. Vomiting may occur just after the completion of the anaesthetic as the patient awakes, and occasionally may occur once or twice during the day of operation, but is never severe and persistent, as is so often the case following ether anesthesia. Vomiting persisting into the second or third day following gas-oxygen anaesthesia always suggests some condition such as dilated stomach, ileus or obstruction, etc., and should be carefully investigated and not casually passed off as post-anaesthetic vomiting. This view was given me by a surgeon who has had a series of some thousands of cases done under straight gas-oxygen anaesthesia.

Next we will consider spinal anaesthesia. Spinal anaesthesia is accomplished by the injection of an anaesthetic drug into the subarachnoid space, where it mingles with cerebrospinal fluid and bathes the

spinal cord and nerve roots, resulting in an extensive nerve block below the segment which the drug reaches. The two difficulties which have always been encountered with this method are: First, control of the height of anaesthesia; second, the sudden and disagreeable side actions. The type of anaesthesia produced by subarachnoid block for work below the costal margin is perfect. There is complete relaxation and absence of muscle tone. Respiratory movements of the abdominal viscera are nearly abolished and the surgeon has a freedom of manipulation which equals that of cadaver surgery but along with this goes the undesirable side actions which are the result of: First, paralysis of the vaso-constrictor nerves below the segment of anaesthesia with a resulting fall in blood pressure. Second, paralysis of the nerves of the respiratory muscles and even the diaphragm due to diffusion upward of the drug into the upper thoracic and cervical regions. Third, toxicity of the drug itself probably gaining entrance to the blood stream, as the interchange is very free between the blood and the cerebrospinal fluid. Fourth, possibly the anaesthetic action of the drug on the medulla itself by direct upward diffusion.

The history of the development of spinal anaesthesia is a little off the subject of this talk, but I will touch on it briefly. Cocaine was first used for spinal anaesthesia in the late nineties, and soon given up as too toxic. Then novocaine came along and was used first about 1904, with better results but always fraught with sudden deaths due chiefly to poor technique, poor selection of cases, and lack of understanding of the side actions and their treatment. Since this time many drugs have been used but with varying results, and I think today it is generally conceded that the original simple solution of novocaine crystals in the cerebrospinal fluid is still the safest and most efficient method we have.

It is an amusing fact that the present popularity of spinal anaesthesia on this continent is due to the erroneous conclusions of an over-enthusiastic American surgeon, Dr. Pitkin. Pitkin felt that spinal anaesthesia would enjoy greater popularity if it were more controllable, so he ingeniously mixed novocaine with starch and alcohol, to make a solution which was lighter than the cerebrospinal fluid and which he figured would not mix readily with the cerebrospinal fluid. He thought that by using this light solution and keeping the patient in Trendelenburg position, he could prevent the anaesthesia from rising above any desired level. In 1929 I visited Pitkin and at the same time saw Gaston Labatt who was the leading advocate of the simple crystals in cerebrospinal fluid method.

I got the technique of these two men, and on returning home tried a series of both methods, and found Dr. Pitkin's solution to be extremely variable in its action. Anaesthesia was always delayed 15 to 30 minutes in developing, and nothing under 200 milligrams was any good at all for abdominal work. Pitkin's claims got spinal anaesthesia started, but the technique has reverted to the old method which is used today

quite successfully where the types of cases are carefully selected.

Now, with regard to the choice of cases for spinal anaesthesia. Any healthy individual can be given spinal anaesthesia for work below the diaphragm or more particularly below the umbilicus. The following observation should aid one in selecting cases for spinal anaesthesia, namely, that practically all spinal deaths fall into two groups: First, poor risk patients and, second, in operations of the upper abdomen, that is gall bladder and stomach cases. Broadly speaking, spinal anaesthesia is for the robust.

I might make three exceptions to this rule in the transurethral operation for prostatectomy, the patients are seldom class "A" risks, but the dose of novocaine necessary is so small and the anaesthesia is kept so low, and the quiet breathing is such an aid to the surgeon's work, that I think one is justified in using spinal. Second, in certain cases of intestinal obstruction when the patient is not too toxic and sick, I think spinal anaesthesia can be used because of the advantage to the surgeon of the relaxation of the distended abdomen, and also as a result of the splanchnic paralysis, the unopposed vagus action tends to return tone of the intestinal wall.

A method suggested by some surgeons in cases where the diagnosis wavers between post-operative obstruction from adhesions and paralytic ileus, is this: Administer a spinal anaesthesia and, if the condition is one of ileus, then gas and fecal matter will be passed in a very few minutes, but if the case is one of obstruction nothing will pass per rectum, and one can transport the patient to the operating room and go right ahead with the operation since the patient is already anaesthetized.

The third class in which spinal might be the anaesthesia of choice in other than class "A" risks is in cases with real active pulmonary disease, such as pneumonias, active T.B., bronchitis, etc. While in my experience I have never seen these conditions aggravated by gas-oxygen anaesthesia, still I feel that if I were in the position of the patient I would a little prefer spinal, providing I was not in a weak and toxic condition.

Now, as to the contra-indications of spinal anaesthesia. Spinal should not be given for operations above the diaphragm. Spinal is questionable in operations of more than one to one and a half hours' duration, because in safe doses the anaesthesia wears off. To lengthen the anaesthesia beyond one and one half hours requires large doses of novocaine which are of doubtful safety. The method of repeating spinal anaesthesia during the course of the operation is apparently reasonably safe, but is technically impracticable. In some centres, heroic doses of novocaine are used even up to 300, 400 and 500 milligrams, but I do not feel that this method of anaesthesia should be pushed to that extent when we have other safer methods to resort to.

Arterio-sclerotics are not good spinal risks. Their vascular elasticity and ability to compensate for the splanchnic pooling of blood is poor. Hypertensives are observed to get the most marked drops in

blood pressure and seem to stand it badly, while hypotensive individuals seem to get the least drop of all in blood pressure and stand spinal quite well.

Disease of the nervous system is always a contra-indication to spinal anaesthesia, because any future development of the nervous symptoms of the disease is likely to be blamed by the patient on the spinal anaesthesia, and it is almost impossible, from a medico-legal standpoint, to prove otherwise. As a matter of fact, spinal anaesthesia has its neurological sequelae. It has been estimated that in 10% of cases some transitory or permanent neurological manifestation is seen. This may be anything from a slight anaesthesia or paraesthesia of a toe to paralysis of the bladder or a complete and permanent bilateral paralysis below the site of injection.

Women, as a rule, do not desire spinal anaesthesia. They usually prefer to sleep through the operation. Children appear to stand spinal anaesthesia quite well, although I have never given it under the age of 15 years. Below this age I would prefer to use general anaesthesia. I might state here that in my series of gas-oxygen anaesthesias, the ages range from 8 hours to 96 years. The 8-hour-old case was one of congenital imperforated anus. The 96-year-old case was carcinoma of the penis.

As for local infiltration anaesthesia with novocaine, this method, as you all know, is quite safe in all types of poor risks and probably can be used successfully in cases where all other types of anaesthesia are thought unsafe, such as in cases of strangulated hernia in the very aged and debilitated subject. Also in desperately sick patients with purulent peritonitis where it is merely desired to insert drainage. Likewise in extremely toxic cases of intestinal obstruction where the surgeon merely wishes to insert a tube in the bowel above the point of obstruction. Many uses of local anaesthesia in minor surgery and nose and throat work are well known. Of the many drugs brought out for infiltration anaesthesia, I believe novocaine is still considered the safest and most efficient.

Sacral anaesthesia is produced by the injection of novocaine through the sacral foramena so as to bathe the sacral nerves as they pass through the sacral canal. This method results in very good anaesthesia in the perinem and is very well suited for rectal work. However, the injection is a little technical and is only successfully made in about 65% of cases attempted. About one out of three require the addition of some general anaesthetic. This method has been used in cases of trans-urethral prostatectomy, but it seems that the glans penis and meatus are not always anaesthetized completely even though the region of the prostate gland is quite well anaesthetized. It seems to me that where nerve block anaesthesia in this region is necessary, it can be done as safely and more easily by a small low spinal which is a "sure-fire" method.

Avertin anaesthesia. This falls into the class of all injection

methods which can never be more than basal anaesthesia to be supplemented by some more controllable method. The same thing applies to intravenous anaesthesia, such as sodium amytal pernocton and nembutal. Once in the vein, these drugs are unrecoverable and out of control. The result is that the careful anaesthetist soon finds that their usefulness is only that of basal narcosis or premedication. The only use I ever put those intravenous barbiturates to now is to produce a state of light narcosis in very nervous toxic thyroid cases, where I wish to save the patient from the psychic shock of being transported from the bedroom to the operating room in a conscious state. All intravenous methods are accompanied by a sharp fall in blood pressure.

There have been some special tests suggested as being an aid in evaluating surgical risk, such as vital capacity test and breath-holding tests of myocardial efficiency. These may be of some value.

Heart conditions give less trouble in anaesthesia than is commonly believed. There are perhaps two exceptions: First, auricular fibrilation. In this condition, no operation but emergencies should be attempted, and the best anaesthesia is local infiltration alone or accompanied by gas in a concentration only sufficient to produce the lightest analgesic state. Second, hearts of toxic patients such as seen in prolonged febrile states, hyperthyroidism, severe jaundice, and those suffering from prolonged suppurative processes. All of these cases are best handled with gas-oxygen anaesthesia. I might say here that these hearts need very careful watching as they are the ones which sometimes peter out even before respiratory movements cease.

Heart murmurs in apparently healthy individuals as a rule give no trouble, and can usually be disregarded, as can all other forms of irregular rhythm except auricular fibrillation. It is not unusual to see an irregularity of rhythm develop under anaesthesia and disappear after the case is over. I have seen two or three cases in which the anaesthesia appeared to produce a temporary heart block, and in a few, a condition resembling auricular fibrillation, during deep saturation with nitrous oxide-oxygen anaesthesia, which always disappeared with the addition of more oxygen to the mixture. Fully 99% of hearts can be depended on to thump along for at least two or three minutes after respiration has ceased from overdose of ether or nitrous oxide, and it is during this two or three minutes that respiration can be re-established easily by direct insufflation of oxygen and carbon dioxide by the trained anaesthetist with a modern gas machine.

I might make brief mention of obstetrical anaesthesia. The following method seems to be about as safe and as efficient a method as has as yet been evolved. At a time when the pains are about 10 minutes apart, a small dose of analgesic combined with a hypnotic drug is administered by mouth; for instance, heroin gr. 1/12 and nembutal gr. 3. This combination might be repeated every three or four hours until full dilatation occurs. Then nitrous oxide-oxygen is administered at the commencement of each pain, resulting in complete

analgesia at the height of the contraction; during the interval between pains the anaesthetic is withdrawn from the patient until the head is being born when complete analgesia is produced by gas oxygen. A few moments before the child is born a mixture of pure oxygen and carbon dioxide is administered to the mother and transmitted to the babe through the placental circulation. In this way the baby's circulation is charged with oxygen and carbon dioxide and respiration is usually established in a very short time.

It might be of interest to you if I mentioned the newest of inhalation anaesthetics — cylo-propane. Dr. Henderson, of Toronto University, discovered the anaesthetic properties of this gas about two years ago while trying to isolate certain impurities from ethelene. Cylo-propane was one of these impurities. Since that time, Dr. Waters, of Madison, Wis., has used the gas in 200 cases of humans, with very good results. I heard Dr. Waters' original paper at the anaesthetists' meeting at Chicago several weeks ago. Cylo-propane is a very potent anaesthetic, giving better relaxation than nitrous oxide or ether. As Waters terms it: "Cylo-propane is a chloroform among the gases." It has not yet been sufficiently tried out and is not being manufactured on a commercial scale. Its possibilities for the future may lie in its great relaxing properties which may be added to nitrous oxide-oxygen mixture in small amounts when additional relaxation is necessary in some abdominal cases.

Last week I used pantocain for the first time for spinal anaesthesia. It is a comparatively new drug. The claims made for it are prolonged anaesthesia of two to four hours, and less depressing effect on the blood pressure. I administered a small dose of novocaine along with 5 milligrams of pantocain, for a transurethral prostatectomy. The anaesthesia was satisfactory, but there were two rather severe drops in blood pressure—the first immediately after the injection and probably due to the novocaine in the mixture—the second drop occurred in about 25 minutes, which was probably due to the slower pantocain taking hold. Both these drops in blood pressure reacted well to a small epinin and ephedrin injection. The operation was over in an hour, but good perineal anaesthesia was present two hours and a half later.

In conclusion, I wish to state that whatever tests or scientific methods are used in evaluating a surgical risk, they are only approximate at best and are, I believe, secondary in value to just a common-sense sizing up of the patient, based on the general appearance, color of the skin, and maybe the quality of the radial pulse. An experienced anaesthetist develops a feel or a nose for bad risks.

I have used the first person throughout because I have attempted only to give you my own impressions as based on what experience I have actually had with these various methods. Rather than having given you a list of indications and contra-indications, I have attempted to show the process of reasoning which influences the anaesthetist in the evaluation of the risk and the choice of the anaesthetic to be used.

*The History of Central Nervous System Syphilis

J. A. LEWIS, '35

OSLER once remarked that "the story of the search for the cause of syphilis is a tale to make the judicious grieve."

It is rather surprising to find that general paresis and tabes were not universally accepted as being of syphilitic origin until Noguchi and Moore, in 1913, discovered the spironema in the nervous tissue of clinical cases. However, keen clinical observers noted mental change in syphilitics as early as the 15th century. In 1497, Leoniceno described "syphilitic haemiplegia."

A case of syphilitic paralysis was discussed by Grunbeck in 1503 and his observations were in accordance with other opinions of his day. The nature of this paralysis is obscure. Might they have referred to cases of locomotor ataxia? Paracelsus described meningitis in 1530.

About the time of Paracelsus, several physicians of note were describing neuralgias of luetic origin and even epileptic conditions were associated with the disease—perhaps the earliest observation of an incipient stage of paresis. About 1556 Amatus Lusitanus described headache due to syphilitic osteitis of the calvarium. In 1610 Scholtzius records a condition which was likely paresis. Willis in 1672 described it accurately and placed it on a firm clinical basis. However, both described the signs and symptoms without mention of its etiological factors. It is likely that the "Syphilitic Mania" described by Sanche was the same condition with its true cause recognized. The findings of a host of clinicians, whose names have not survived the onslaught of time, were summed up by Astruc in 1744 in a review entitled "De Morbis Venereis." This work includes much of central nervous system syphilis as well as other parenchymatous lesions. While Astruc's work contained little original material yet it brought together the knowledge of the subject at the time into one volume, now chiefly of historical interest. Even at this time, an attempt at differentiation of the types of involvement was being made. Ulrich Van Hutten described a paralysis of syphilitics which he believed due to the mercury used in the treatment; he does not say whether the paralysis was relieved after cessation of mercury treatment—probably the paralysis was relieved by death.

So great was Hunter's influence in checking progress that an interval of 45 years elapsed before Lallemonde in 1834 is said to have proved the existence of specific meningeal and parenchymatous lesions of syphilitic origin. This is the only voice effectually raised against Hunter's fallacy before the great French-American Ricord dashed Hunter's arguments to the ground.

*Presented at the November meeting of the Osler Society of London.

His love for risky anecdotes in his field made Dr. Oliver Wendell Holmes style him "the Voltaire of pelvic literature, a skeptic as to the morality of the race in general, who would have submitted Diana to treatment with his mineral specifics, and advised a course of blue pills for the Vestal Virgins."

It is only in the period since Ricord that essentially intelligent, organized and fruitful investigations of the clinical features of this disease have been instigated. Before this time, there was no adequate description of the disease as a whole, and disconnected observations and the weirdest of opinions made an accurate visualization of syphilis in its entirety impossible. Upon the firm basis of Ricord's minute observations and far-reaching and well-grounded conclusions rests our whole conception of the disease today.

Romberg is the next prominent figure upon the stage. He was a professor in the Berlin Medical School, and his "Lehrbuch Der Nerven Krainken" was the first formal treatise on nervous disorders, containing his famous sign, and associated the lesions causing it with the dorsal columns.

Duchene next appeared. He was descended from old sea-faring Breton stock, and forsook a career in navigation, which his parents had planned, for the study of medicine. He specialized in neurology—working chiefly on the spinal cord—and did original work on cord changes in anterior polio-myelitis and bulbar paralysis, and is also remembered for the Erb-Duchenne paralysis.

Heubner, in 1884, published results of his research on syphilitic cerebral arteritis. As well as this pathological study he recognized the occurrence of simple and functional psychoses in luetics. His divisions according to the site of the lesion are interesting. First, gummata of the brain convexities caused depression and irritability progressing to deep melancholia or a maniacal state, and not infrequently followed by loss of memory and intellect and changes in disposition. Secondly, arteritis of the basilar arteries producing simply mental feebleness. Thirdly, arteritis of the convexities, producing a dazed or even an intoxicated condition, frequently accompanied by paralysis and symptoms of cortical irritation.

Fournier was professor of medicine in Paris and devoted his whole life to the study of syphilis. He included tabes and paresis under the name of "parasyphilis" and, with Erb, gathered statistics to substantially prove his point. This stirred up combat; favoring his opinions were the Frenchmen Valpain and Grasset, Gowers of England, and Erb of Germany. Fournier distinguished the conditions, chronic depression with gradual loss of intellect, from an acute form, with a generally excited state, mania and delirium. A glimpse of Fournier's almost modern outlook on the sociological aspects of venereal disease is given in his own work, "Treatment and Prophylaxis of Syphilis," published in 1881, in a chapter entitled "A Doctor's Advice to Young Men of Eighteen." "Woman! What could I say on such a subject if I were a

moralist, a philosopher, or a religious instructor! But I am merely a doctor, and my mission is only to speak to you in my capacity as a medical man."

Meanwhile let us take a "bird's-eye view" of the change in opinion on the etiology of "parasyphilis" as reflected through a spectator by the work of clinical syphilologists from Fournier to the advent of the key to the riddle. We can use no better example than Osler's "Principles and Practice of Medicine" as our source. In 1892, Osler's first edition did not include tabes and paresis under central nervous system syphilis.

Under etiology of tabes he says "of specific causes syphilis is the most common . . . excessive fatigue, over-exertion, exposure to cold and wet, sexual excesses all are factors. Sir James Stewart has noted that the Ottawa lumbermen, who live a very hard life in the camps during the winter months, are frequently subject to locomotor ataxia." Of G. P. I. he says, "Heredity is a factor in only a few cases . . . an overwhelming majority in married people. The habits of life so frequently seen in our large cities and well expressed by the phrase 'burning the candle at both ends' strongly predispose to the disease. Among other factors are syphilis, excesses in 'bache et venere,' injuries and chronic lead poisoning."

In 1912, in the last edition which he revised alone, we find under the etiology of tabes "syphilis is the important cause," and quotes Erb's figures. Under paresis "as in tabes the important factor is syphilis which is antecedent in both conditions in practically all cases."

Then pathology came to settle the point. In 1905, Schaudin and Hofman demonstrated the spironema in the chancre and in the same year Levaditi introduced his silver impregnation technique for its demonstration in tissues. Then in 1913 Noguchi and Moore demonstrated the spironema in brains of paretics and the cord of tabetics, and the argument was settled. To drive home the last spike, Noguchi and Roux injected emulsions of nervous tissue of paretics into monkeys and found that active syphilis followed. Central nervous system syphilis then became a subject for prophylaxis, diagnosis and treatment. The first step in early accurate diagnosis was the introduction of the spinal puncture by Quincke in 1891. However, it was not until 1907 that Wassermann introduced his serological test for the diagnosis of syphilis.

Noguchi, in 1911, introduced the luetin reaction — a skin test. However, as many drugs, starch with iodides and so forth, gave the same reaction, it is only now used in the diagnosis of congenital syphilis, when drugs can be excluded. The Lange colloidal gold test is now used in conjunction with the Wassermann as a spinal fluid test.

The treatment for the "French," "Italian," or "Spanish" pox was begun by the use of mercury, first as inunctions, later, in the early part of the seventeenth century, it was used internally. However, the treatment of the parasyphilitic infections was naturally not that of syphilis generally until the time of Bell and Fournier. Since this time,

iodine, bismuth and arsenic have been tried, and the general trend seems to be to the constant use of mercury plus some adjuvant. A glimpse of the attitude toward lues as it affected non-specific general treatment in Virchow's day at the Berlin School is well given by Naunyn, Virchow's student, "North of the old chante stands the new chante, an ugly, gloomy building with grated windows containing the insane, the sick convicts and the syphilitics."

Schachman, in 1901, was the first to use intraspinal injection treatment. He heroically injected 1cc. of 1 per cent. mercury in four cases. In the same year Paul Ehrlich introduced arsphenamine as a sterilizing agent for the blood stream. Great wonders were predicted and at first only five injections were given. But it was too good to be true—the magic results did not last and the course had to be prolonged.

Swift and Ellis introduced what seemed a very feasible intraspinal injection. The procedure consisted of injecting arsphenamine intravenously in a tertiary luetic, later withdrawing blood, allowing it to clot, centrifuging, heating to sterilize and injecting intrathecally. This aroused wide attention and was used extensively to cut down the cases of shock and reaction to intraspinal arsphenamine. Wechselman, in 1913, reported the injection of Ehrlich's later discovery, neoarsphenamine intraspinally in two paretics "without injurious effects." Marenesco could not even give as good a report of it but recommended the arsphenamized serum of Swift and Ellis.

In 1915 Wardner treated paretics with intrathecal injections of arsphenamine, going through the dura over the precentral gyrus after trephining. In the same year Howard and Sharpe used neoarsphenamine similarly. However, there was strong opposition to intrathecal injections on the grounds that intravenous were as rapid and effective.

Campbell, in 1914, justified injections into the saggital sinus by injecting trypan blue into animals. After spinal injection he found the dye only on the cord or brain stem, while after injection above the tentorium he found the cortex as well as the cord and brain-stem stained.

Lorenz, of Wisconsin, sums up the stage reached at present (32) in this form of Therapy, "I am convinced that the paretic type is frequently benefitted and surprisingly so, and further that there are cases which fail to respond to Tryparsamide that do respond to Malaria." However, he goes on to say that it is hazardous and the cases should be carefully selected.

In this paper no mention has been made of the recent hypothesis advanced as to various subtypes of the spironema pallida specific for certain tissues, nor has the malarial treatment been adequately dealt with—but these are at present in the theoretical stages and are too "modern" to be of strictly historical interest. Many names, great in syphilology, such as Morgagni and, later, Hutcheson, of England, have been omitted as their contributions did not bear so directly on our subject.

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The Essentials of a Normal Diet

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THE assumption is often expressed that the normal person, when free to choose, will select the food best suited to his needs. This is true to a degree. Providing the supply is sufficient he will usually eat enough to meet his energy-requirement but he may not choose the proper types of food in sufficient amounts, the minerals, the vitamines and the other substances necessary for life. The type of food depends largely on the custom of the race. To-day we are seeing a great many faddist diets, which, because they are not balanced, often produce a general deterioration of health in the individual. Each diet must be considered from the total caloric value, adequate amount and quality of proteins, fats, carbohydrates, minerals, vitamins and the satiety of the diet.

The total caloric value of the normal diet must be sufficient to provide for the basal metabolism, the stimulating action of food stuffs, the loss of energy in the excreta and the need of muscular work. The basal energy-requirements can be calculated most accurately from the surface area of the body. Du Bois has worked out a table whereby, knowing the height and weight, you can read off the surface area in square metres. The energy-requirement per square metre is greater in the male than in the female and also in youth as compared to age. The adult male requires about 40 calories per hour and the female 37 calories per hour. A small amount of the food eaten escapes digestion and absorption and is eliminated in the feces.

This loss of food in the excreta is considerably greater on a vegetable than on an animal diet. On a mixed diet the loss is about 10 per cent. Metabolism is increased by exercise and by fluctation of tem-

perature. These further increase the energy-requirement by about 20 per cent. The ingestion of food, especially of the proteins, stimulates metabolism about 10 per cent. The average total calories required per day is about 3,000 in the average sized man and 2,400 in the average sized woman, doing moderate work. In sedentary work the total requirements are less. Brain work does not seem to increase the energy-requirement at all.

The basal metabolism is considerably greater in children than in adults per square metre. This fact is due to the increased needs of energy for growth. Up to the age of about sixteen there does not seem to be much difference in the requirements between the two sexes. It is somewhat difficult to ascertain the energy output due to muscular activity in children. It is probable that any reduction of the rations will cause a diminution in activities before it will effect the processes of the body which are essential to health and growth.

From experimental studies done by Benedict he has shown that under-nutrition leads to physical weakness and fatigue but no depreciation in the mental power. This under-nutrition state was shown on a huge scale in Central Europe during the Great War. In Germany, for example, the people were on a very low calorie diet. These people fatigued more readily and showed a general deterioration of health. Germany, it is said, really lost the war because of under-nutrition which undermined the morale of the people, resulting in internal discontent.

Proteins are essential in a diet because they are the only class of food containing nitrogen and sulphur. These are used for the replace-of the wear and tear of normal activity. Any excess protein can be broken down by the liver and converted into sugar and are thus utilized. The minimal amount of protein required for tissue repair is about 30 or 40 grams per day. It is also necessary that we consider the kinds of proteins used as there may result some deficiency in certain of the essential amino acids. In order to provide a margin of safety when consuming a mixed diet, it is wise to provide about 80 grams of protein. Animal proteins are usually regarded as far superior to the vegetable protein although the proteins of potatoes are among the most valuable.

The amount of fat eaten increases steadily with the income of the people as they are among the most expensive foods. Fats take a long time to be digested and absorbed and are thus of value in preventing hunger, which affects the efficiency of the worker. Weight for weight fat has double the calorie value of starch or sugar. The fat ration should always be high when there is a large increase in the energy expenditure of the body, either in the form of work or as a result of exposure to cold. The fats are also important as they contain vitamines.

Carbohydrates furnish about 50% of the total energy content of most diets. These are the cheapest foods obtainable and are thus given to excess in certain institutions. When carbohydrates are less in amount than the requirements or not utilized by the body, as in diabetes mellitus, the fats are incompletely broken down, giving rise to acidosis.

The chief minerals which we have to consider in the diet are calcium, phosphorous, iron, iodine and sodium chloride. There is a deficiency of this in about 15% of average diets. This deficiency is of great importance in children where calcium and phosphorus are used in bone formation. This can easily be made up by the use of milk, which is high in calcium. About 0.88 grams of phosphorus is necessary per day, but this amount is usually found in the average 3,000 calorie diet. The daily intake of iron should not be less than 12 milligrams and this requirement is increased during pregnancy and lactation. Vegetables will supply this need and these are used in children to avoid the anaemia which will develop on a diet of milk alone. Iodine is required for the preparation of thyroxin by the thyroid gland. In certain districts where there is a deficiency in iodine content of the water and food, simple goitre can be prevented by the use of iodized table salt or by the addition of iodine to the drinking water. Iodine requirements are increased at puberty, during pregnancy and lactation, and again at the menopause. Sodium chloride is needed in much smaller quantities than is generally used.

Milk supplies an abundant amount of calcium and phosphorus but is very poor in iron. Fruits and vegetables are relatively rich in calcium and iron. Eggs are rich in phosphorus and readily assimilable iron. Lean meats are rich in iron because of the hemoglobin contained in them. Liver is a particularly valuable source of iron because of the precursors of hemoglobin contained in it, as well as copper and certain other elements. Abundant iron is contained in the hulls of certain cereals but much is lost in the milling process.

Water is a vital factor in nutrition. It is of greater importance than ordinary food-stuffs and is second only to oxygen. It is important in the transport of nutritive elements to the cells and also in carrying off the waste-product of metabolism. In health a fairly accurate balance of intake and output of water is maintained. If there is a tendency to dehydration the individual has a desire to drink more fluid and thus the balance is restored.

Vitamins are essential for health and growth. There are six vitamins and are named, A, B1, B2, C, D and E. We do not know very much about the effects of super-abundance of these substances. Deficiency in Vitamin A leads to failure of growth, xeropthalmia, lowering resistance to infection and ultimately death. Vitamin B1 is necessary for growth and its absence leads to beri beri. Vitamin B2 is also a growth-promoting substance and deficiency here may result in pellagara. Deficiency in Vitamin C produces scurvy. Vitamin D will prevent rickets and is used in the bone formation and in the development of teeth. Vitamin E, the reproductive vitamin, is not essential for health but only for reproduction.

Vitamin A is found in green leafy vegetables, milk and butter. Halibut liver oil contains more Vitamin A than cod liver oil. The source of Vitamin B1 is in yeast, wheat germ, milk and meats. Vitamin B2

BALANCED MEAL PLANNING DAILY

Milk 1 Pint	Vegetables Two or more with at least one leafy		Fruits Two or more with at least one raw	Cereals At least one whole grain food		Meats, Etc. At Least One Serving Animal Protein A Second Protein Food if Desired
Ways to use it	**Leafy Vegetables**	**Other Vegetables**	Apples	**Whole Grain Food**	**Other Cereals and Starches**	**Animal Protein**
Drink—	Asparagus	Artichokes	Apricots	Cracked wheat	All breads	Eggs
Whole milk	Broccili	Beets	Bananas	Flaked wheat	All cereals	Fish
Skimmilk	Brussel sprouts	Carrots	Blackberries	Muffets	Cornstarch	Fowl
Buttermilk	Endive	Cauliflower	Blueberries	Puffed Rice	Crackers	Meat
Cocoa	Green Beans	Celery	Cherries	Puffed Wheat	Flour	**Other Protein**
Chocolate	Greens—	Cucumbers	Dates	Rolled oats	Macaroni	Beans—
On cereal	Beets	Eggplant	Figs	Shredded wheat	Potatoes	Kidney
On Desserts	Chard	Fresh lima beans	Grapefruit	Whole cornmeal	Rice	Lima
Cream soups	Dandelion	Green Peas	Lemons	Whole rye bread	Sago	Navy
Cream sauces	Spinach	Kohl-rabi	Oranges	Whole wheat bread	Spaghetti	Soy
Scalloped dishes	Lettuce, head	Okra	Peaches		Tapioca	Lentils
Puddings	Lettuce, leaf	Onions	Pears			Nuts
Custards	Watercress	Parsnips	Pineapple			Cheese
Ice Creams		Potatoes	Plums			Milk
		Radishes	Prunes			
		Rutabagas	Raisins			
		Squash	Raspberries			
		Tomatoes	Rhubarb			
		Turnips	Strawberries			
		Wax beans				

is found in the same substances as B1 and also in green vegetables. Fruits, tomatoes and oranges have an abundance of Vitamin C. Vitamin D is fat-soluble, thus is found in butter and other oils, especially cod liver oil. Vitamin E is found chiefly in vegetable oils, especially wheat-oil, but also occurs in butter and other fats.

Man eats in order to feel satisfied, therefore we must consider the extent to which foods give the sense of well-being and satisfaction. Satiety value depends on the rate of digestion and absorption of the food. A common expression regarding a meat meal is that it "sticks to the ribs," or in other words has a high satiety value. Milk is next in value to meat and the richer the milk the greater is its satisfying effect. The satiety quality of eggs depends largely upon the cooking. Fish has much lower satiety value than meats or eggs. Bread and green vegetables have relatively low satiety value. Fats such as butter and olive oil increase the satiety value of a meal as they slow digestion. Sugar delays the emptying of the stomach and thus is valuable in this respect. Coarse foods and indigestible foods have no satiety value. If our diet does not give us a sense of well-being or satisfaction then we should include some of those substances with high satiety values.

From the table we see that each day's rations should include one pint of milk, two or more vegetables with at least one of the leafy variety, two or more fruits with at least one raw, cereals with at least one whole grain food, and one serving of animal protein. This diet can be arranged into three meals to suit one's idea or custom of meal planning. This amount of food will provide the necessary factors in diet and the total calories can be varied depending on the individual's need. There are many faddist ideas concerning the proper grouping of food as seen in Ford and Hayes diets, but as far as has been proven, these have no special value and are merely eccentric ideas of some individual.

In this paper the author points out some of the essential principles in balanced meal planning. If we keep in mind these points of a normal diet, and that the same applies to the invalid, we can hope for more results as well as a better satisfied patient.

Report of a Case of Congenital Atresia of the Oesophagus

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A WOMAN aged 28 was delivered of a baby boy weighing 4 lbs. 6 oz. at St. Vincent's Hospital, Erie, Pa., in May, 1933. The expected date of labour was four weeks later. At birth the child appeared to be normal and in good condition. There had been one previous, normal, full term delivery, and the family history was negative for congenital defects.

Eight hours after delivery, the babe, when put to the breast, attempted to nurse. There was immediate vomiting of breast milk and also regurgitation of the fluids given by mouth. Oral feeding was discontinued. The infant voided and the stool passed appeared to be of the usual meconium type. Saline was given per rectum and parenterally.

Two days later the temperature rose to 102° F., distension of the abdomen became marked, and the infant became obviously toxic. Gastric lavage was attempted but the tube met an impassable obstruction 5 inches from the lips.

An X-ray examination showed that no barium passed beyond the upper third of the oesophagus and indicated a complete obstruction. There was also a clouding of the right chest suggesting a pneumonic process. A diagnosis of an atresia of the oesophagus with a right lobar pneumonia was made. The stools became slimy, distension of the abdomen became more marked and respiration became of the Cheyne-Stokes type. The temperature rose to 108° F. and the infant died on the sixth day.

The report of the post-mortem examination by Dr. H. H. Bullard was as follows: "Examination of stomach, duodenum, oesophagus and trachea shows stomach and duodenum to be of normal appearance. There is no constriction of the pylorus of the stomach. A small probe introduced into the oesophageal end of the stomach is easily passed up through the oesophagus and makes its appearance in the back of the mouth. When the stomach and neck organs are removed a small probe passed down through the oesophagus enters this tube for a distance of about 5 cm. where it encounters resistance. On opening the oesophagus it is found that it comes to a blunt termination about 5 cm. below its upper extremity. On introducing a probe from the stomach up through the oesophagus the probe is found to enter the trachea opposite the point of termination of the upper part of the oesophagus. This opening into the trachea is about 2-3 cm. in average diameter and is found on the posterior wall of the trachea. A small quantity of milky whitish fluid is found in the upper part of the oesophagus and a very small quantity of similar fluid is also found in the stomach. This whitish fluid is apparently barium both in the oesophagus and in the stomach. Distension of the stomach may have been caused by the swallowing of air through the opening in the trachea. Anatomical diagnosis—Congenital atresia of the oesophagus with opening of lower portion of the oesophagus into the trachea, prematurity, malnutrition, icterus neonatorum."

DISCUSSION

According to Tucker and Pendergrass[1] the mortality rate in congenital atresia of the oesophagus is practically 100 per cent. In most cases death is due, not to starvation, but to pulmonary complications following the aspiration of secretions, and from the return of fluids and

foods through the lower end of the oesophagus when a gastrostomy has been done.

Recently, several new types of technique have been advanced to aid in the diagnosis of this particular anomaly. According to various authorities, congenital atresia of the oesophagus occurs some time before the third month of intra-uterine life. Farber[2] has stated that "vernix caseosa and cornified epithelial cells are not present in the contents of the amniotic sac in large amounts until the last few months of pregnancy. It is therefore apparent, that should congenital atresia be present at any point in the alimentary canal, none of the contents of the amniotic sac would be present in the meconium." Similarly, Feldman[3] has pointed out that, "in those rare cases where the oesophagus is congenitally occluded, the component parts coming from the liquor amnii, viz., vernix caseosa and lanugo hairs, are not found." Farber has also stated that, "the most constant easily recognizable constituents of that part of the meconium derived from swallowed contents of the amniotic sac are cornified epithelial cells. The ease of recognition and the significance of the cornified epithelial cells in the contents of the amniotic sac have been amply studied. These cells are large and thin, have no nuclei, and are often found slightly turned on edge. They resemble large scales and may easily be found in normal meconium. Since they are derived from the skin of the foetus and must be swallowed to appear in the meconium, their appearance in the meconium is proof that the gastro-intestinal tract is patent throughout. The absence of cornified epithelial cells from the meconium is proof that a point of atresia is present somewhere in the alimentary tract." Technique for the recognition of cornified epithelial in smears of meconium has been outlined by Schmorl.[4]

The diagnosis of this type of congenital defect is made on history, clinical and X-ray findings, absence of cornified epithelial cells in the meconium and findings revealed by the oesophagoscope and bronchoscope. The prognosis is based entirely on an early diagnosis and surgical intervention. In favourable cases the treatment of choice is gastrostomy with a closure of the lower end of the oesophagus.

SUMMARY

1. Congenital atresia of the oesophagus is not an uncommon anomaly.
2. Practically 100 per cent. of cases are fatal.
3. Several new diagnostic procedures have been mentioned.
4. Early diagnosis is important for surgical treatment.

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The Cancer Challenge

NORRIS WEMETT, '37

WHAT field is open to the medical student? Perhaps the answer to this question should serve as the opening sentence of this article. The medical profession holds out to the student several challenges which are at present considered by many as almost insurmountable but which we must regard as goals for which to work, if we are to become benefactors of the human race. We as medical students have the opportunity of which thousands have dreamed and hoped for because of their love and desire to benefit humanity. Since we have been elected to carry on in such an important profession, it is fitting that we concern ourselves with its problems, which must be solved if suffering is to be minimized and careers are to continue uninterrupted. The equipment necessary for attacking this work is being given to us every day in our lectures and laboratories, and we have no choice but to accept and thus fulfil our ideals by using our lives in service to the human race. Outstanding, and demanding the attention especially of us, who are learning the fundamental facts of medicine, is the cancer problem.

This problem, as described by noted scientists, presents an unusual picture. It is made to appear as unsolvable as the question of life itself and yet these same men continue by saying that the whole field is predominated by the highest type of optimism.

Miller,[1] in a recent article on the history of cancer, speaks of its solution as one of the great failures of man. Records show that the disease dates back to 3500 B.C., yet we, at the present time, do not even know the cause. Perhaps we should not even mention it as being a disease, for truly Peyrilhe (1735-1804) was correct when he wrote, "as difficult to define as it is to cure." He went on to say that brilliant men have wasted thousands of hours in the study of cancer. However, he made a substantial contribution towards the solution of this problem when he recognized the disease as being at first local then spreading throughout the entire body by means of the lymphatics.

Hippocrates, in 300 B.C., wrote, "it is better to give no treatment in case of hidden cancer; treatment causes speedy death, but to omit treatment is to prolong life." Of course we know that such is not true to-day, as treatment does sometimes cure, but we are not justified in showing any conceit over these cases as long as the disease heads our mortality list each year. The cures described by Miller in his article include other than those of physicians. Chief are those of quacks who, by playing upon the fears of the people, have done a great deal to retard scientific advancement by making the disease one of which individuals are ashamed. Thus many cases do not reach the hands of intelligent surgeons until too late and many are never heard of or known until death. The following few lines express in a concise manner this side of the story:

"Relieved by art or release by death,
Here lies a fool flat on his back,
The victim of a cancer quack,
Who lost his money and his life,
By plastic, caustic, and by knife." Anon.

Virchow (1821-1902) in discussing the advancements made said, "the most scrutinizing investigations have not yet arrived at a convincing demonstration." Moreover Ehrlich (1854-1915), who spent three years at cancer research and then gave it up in disgust, declared that, if he were offered a million dollars a year for doing cancer research he would refuse. Bier, a noted German surgeon, said, "when a brilliant man at the end of a famous career wants to make a fool of himself, he takes up cancer research." In a recent editorial in the American Journal of Cancer[2] the assertion is made that "probably not in the entire world of science are there 50 men who are competent to produce first class research in cancer." Statements such as those display a hopelessness that, unreal as it seems to us in the preliminary stages of our course, is disputed only by the optimism of those working upon the problem.

This eternal optimism is shown in many ways and may be considered as a bright light which stands out through the numerous failures and serves as a driving power which will ultimately bring success. Probably the most conclusive proof of this optimistic feeling, that predominates the field of cancer, is the great attention that is paid to it, both from the standpoint of research and the magnitude of publicity. Saper[3] remarks that "research is being carried on in practically every civilized country, looking to the discovery of the cause or causes of cancer." Continuing he says that clinical research is making progress; that few people realize how great has been the accumulation of knowledge in this field in the last five years. Confirming this same fact the editorial in the Journal of Medicine[4] says "cancer research is one of the chief occupations of the leading biologists and pathologists throughout the world of science. Many encouraging reports are published by surgeons holding to the five year cure, after operation." However there are those such as Kolischer[5] who criticize the advance that is being made, claiming that progress has been impeded by clinging, too tenaciously, to traditional concepts. Although this may be just criticism and given undoubtedly with the purpose of interesting research workers along new lines, the article reveals that assuring results are being attained. Primrose[6] in a discussion on the control of cancer, states all authorities agree unreservedly that cure may be effected if the disease is removed by surgical means at a sufficiently early stage in its course. . . . Cancer is curable providing a good surgeon is consulted at once. . . . Earnest and skilled workers in this field are accomplishing promising results." Bruce[7] demonstrates a different aspect of the situation in his discussion of the importance of the problem and the increasing attention that it is receiving from governments, societies and numerous commissions. To some this may not seem to be in the optimistic vein, but at least it shows a

determination to gather knowledge and in time to accomplish the task. Possibly the most convincing proof of the bright outlook may be illustrated by the remarks of MacCarty[8], who says, "cancers are being cured and probably prevented every day. After having studied 32,792 patients with cancer I do not feel that the disease is hopeless. In fact I know that it is not hopeless. The next ten years will show better results. I wish to emphasize that early recognizable cancer can be cured and every good surgeon and radiologist knows this. The handling of the cancer problem is quite simple. It rests with the medical profession."

What is needed to solve the cancer problem? Miller[1] says the facts are here, but that a medical Newton must come and arrange them for us. The editorial in the American Journal of Cancer[2] states that cancer is waiting for its Darwin. In other words true men of science are needed. Men who are more for a new discovery than for money. Men who will not care about the royalties from their discoveries, who will work for years, and if they fail, rejoice because they save someone else from travelling the same road; men who are willing to try and try again, realizing that somewhere facts will be obtained to fit into the plan which the master will ultimately draw. There is an imperative requirement for men such as Bright (1789-1858), who was the first to correlate his post-mortem findings and his clinical observations of patients with diseases of the kidney. Men whose minds are trained in the experimental methods of zoology and chemistry, who have ideas which are capable of being attached experimentally, who have enormous patience and a certain amount of self confidence to keep them at work when everything goes wrong and experiments lead to nothing, men with constructive and resourceful minds. It is to men such as these that the cancer problem presents its challenge and it is the medical students of to-day who must accept the challenge and prepare themselves for the task that will ultimately be theirs.

The cancer problem is not hopeless. It has defied solution for many years, but it cannot resist indefinitely the organized attack of modern scientific investigation. Past efforts have not been in vain, for the valuable data thus amassed provides a broad foundation for future endeavours. We, as medical students, must play an important role in the ultimate victory over this dread enemy of mankind.

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Editorial

From the Student's Viewpoint

THE aim of this article is to point out what are considered to be some of the failings of our present day educational system. These remarks are directed at education in general and medical education in particular. In many of the discussions carried on by our educators, it would seem that the student is much considered. The trouble is that the consideration seldom goes further than the discussion. From the time a child starts Kindergarten until he finishes University, the whole tendency of the present day system is to inhibit individual thinking. To make a success of education, all that is required of a student is to absorb, spongelike, whatever is spewed from the mouth of the lecturer. When the time of examination comes, the "sponge" is simply squeezed and the information runs down the arm and on to the paper. Just as most of the water leaves a sponge after a good squeezing, so does most of the knowledge leave the memory of the individual. As one looks back on courses completed, it is phenomenal how little of them is remembered.

Why does a student forget so much of what he has been taught? Because so many courses are so full of detail that the main principles are completely obscured by it. Much is said about getting "pegs" on which to hang the knowledge imparted. This is an ideal way of learning but when pegs are hidden in a cloud of detail and cannot be found, they are worse than useless. If educators would only become earnest introverts for a while, conjure memory and try to recall their own reactions, as students, they would soon be better able to teach. Human nature has not changed since their time as undergraduates. It is justifiable to presume that they, like ourselves, were overwhelmed with a landslide of detail, very little of which they themselves ever remembered.

Medicine of to-day is taught by specialists, which is as it should be. They should not, however, forget that it took them years to gain their special knowledge. It is then impossible for a student, labouring with all branches of medicine, to attempt to get for himself more than a small portion of each. There is a limit to the average ability to absorb knowledge. Sometimes hours are spent on topics of purely academic interest, while ordinary commonplace diseases that if recognized and treated can be cured, are given no more, if as much, attention as the rarities. In an undergraduate school of medicine, these rare diseases rate only "honourable mention," while the guests of honour should be

the common problems of every day. Leave the rarities to the post-graduate student who makes it his aim to know and treat them.

In lectures, rather than trying to impart an understanding of a disease process and allowing and encouraging students to logically deduct its possible manifestations, a concerted attempt is made to tabulate any and every sign and symptom ever manifested by said disease. The result is the student tries to remember the numerous signs and symptoms because they are stressed. In so doing, the pathological process is completely forgotten and in the resultant jumble, all is reduced to a hazy state. If an attempt had been made to impress on the student the process and its manifestations only indicated, there is a great possibility that, when the occasion arose, he could think back and by a series of deductions form a reasonable opinion as to its possible manifestations.

As was mentioned earlier, our modern education system inhibits thought. Many of the speakers at freshmen receptions go to great pains to tell us that everyone is entitled to his or her own opinion. Well spoken, but try, by some process of reasoning of your own, to answer some problem postulated by a lecturer. If the result is contrary to his own beliefs, see how well it is received. It is better to reason and reason wrongly than not to reason at all. Try to reason out anything that is being said in lecture. Ordinarily it is a gross impossibility, because one is kept more than busy trying to write as fast as the lecturer reads. With deploring frequency the mechanics of a lecture are: from lecturer's notes—to his eyes—out his mouth—to students' ears—to students' notes. Too often there is nothing done to stop this flow in student and not his notebook.

Frequently students are criticized for putting each separate subject in "pigeon holes" and not trying to correlate the different courses. This accusation is justly made as it is the common practice. The party to blame for this is not the student, because he has learned from years of experience to "hand back to each teacher that particular person's views and theories." If this practice is not religiously pursued, the result is frequently a "sup" or a "failure." Therefore, from necessity the student segregates subjects in order not to repeat the wrong view.

The timetable in itself is thought inhibitory. From Monday to Saturday it is filled. It is so full that one is kept busy trying to absorb the knowledge that comes hurling at him from every angle. If one stops long enough to conjure up a thought, either in or out of class, he has to neglect his memory work and is soon left hopelessly behind.

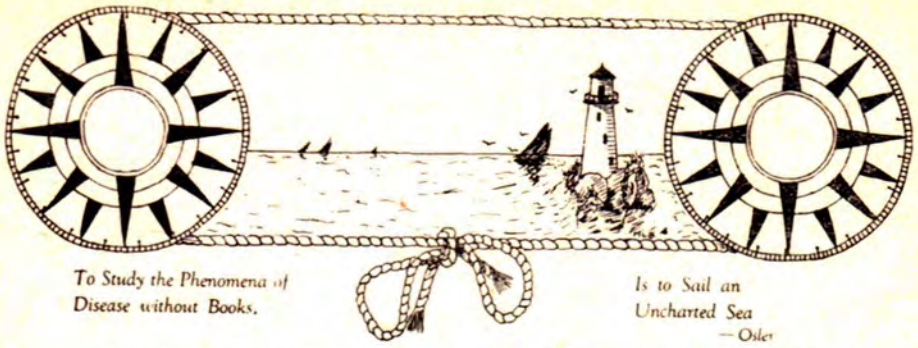
A cure for many of the ills of our present system is the absolute prohibition of notebooks in class, other than say, one 3 x 5 epitome card. This should apply to lecturer and student alike. If a lecturer who has specialized cannot remember enough of a given topic to talk specifically for an hour, what should he expect from a student at examination time who has no access to notes, and no such training? That is bad enough, but when an examiner finds it necessary to review a problem from a text or his notes to refresh his memory, in order to

mark an examination paper, it is simply adding insult to injury and asking the impossible from the student.

Higher education tends to be simply an accumulation of knowledge. By this I mean only a collection of facts with no attempt at teaching wisdom, which after all is simply sound judgment. It then resolves itself into a post-graduate course in memory work, which tends to defeat its own end by expecting too much unnecessary detail.

CONCERNING THE SYMPOSIUM

THE recent symposium on Thyroid, held under the auspices of the Hippocratic Society, in the auditorium of the Medical School, proves the appeal, to undergraduates and graduates alike, of this method of presenting major problems. The topic, Thyroid, was chosen as the result of circulating a questionnaire amongst the members of the faculty. The undergraduates were entirely responsible for the endeavour. It was initiated for the purpose of bringing together the different years in the discussion of the various phases of a common topic. The anatomy was discussed by G. Stenhouse, '37, the physiology by C. L. Scott, '36, the symptoms and diagnosis by J. A. Lewis, '35, the pathology and treatment by F. Riggalls, '34. The discussion led by Doctors G. A. Ramsay and F. J. H. Campbell added much to the value of the evening's instruction. Throughout the entire programme, careful preparation and masterly presentation were evident. The experiment was definitely a success. We proffer congratulations to both the instigators and the speakers on the success of their initial effort. May there be more symposia of a like nature in the future.



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Abstracts

THE RATIONAL TREATMENT OF BONE TUBERCULOSIS

PETTER, CHARLES K.

Jour. Bone and Joint Surg.

XV 4, 986-987, Oct., 1933

"Tuberculosis may attack any structure in the body." Working upon this principle the general treatment of the patient, afflicted with T. B., becomes imperative.

The object is to effect a minimal period of total disability and a reasonable degree of insurance against reactivation of the tuberculous process.

Working harmoniously together, the orthopaedic surgeon and the specialist in tuberculosis treat the patient conservatively before and after an operation that is timely and judicious, always bearing in mind the fact, that affected weight-bearing joints may be ankylosed to secure permanent results.

The author's statistics indicate a hospitalization period of 682 days and 2% recurrences in the first two post operative years, when these principles of treatment are followed.

—J. B. McKAY, '34.

SURGICAL THERAPY IN GALL-BLADDER DISEASE

GRAHAM, R. R.

Can. Med. Assn. Jour., XXX; 119, 1934

"An infected gall-bladder is incapable of restoration to normal function."

The author deals with chronic cholecystitis, with or without stone. If diatetic measures fail to give relief the only alternative is surgery. Cholecystectomy is preferable to cholecystostomy, provided that there is no serious involvement of the common ducts and that the patient's condition warrants the major procedure. Residual symptoms remain in 10 to 20 per cent. following surgery. These fall into three classes:

(1) Those due to damage to the bile ducts, pancreas, or liver, or to adhesions. Gentleness of manipulation and covering the gall-bladder bed with peritoneum or an omental graft are recommended.

(2) Those in which the patient has developed a reflex "hair-trigger" mechanism. Sedatives, atropine, and correction of air-swallowing and constipation are advised during convalescence.

(3) Those in which a stone in the common duct has been overlooked. The fact is stressed that the presence or absence of pain or jaundice, and palpation of the common duct are poor evidence of the presence or absence of a stone. Indications for choledochotomy are given. A procedure for exploring the bile duct is described in detail.

—J. H. BEATTIE, '35.

DIET IN DISEASE OF THE COLON

PATTERSON, S. W.

Practitioner, 131; 1; 82, Jan., 1934

In the dietary treatment of disease, the physician must treat not only the subjective symptoms, but also the underlying pathology. In addition, he must ever keep in mind the idiosyncrasies of the individual patient.

1. In functional constipation the diet must be high in cellulose. Along with this the fat, inorganic acids and sugar content must be high. The patient must consume a moderate amount of water and avoid astringents.

2. Constipation due to organic obstruction necessitates a low-residue diet.

3. Severe acute attacks of diarrhoea and dysentery require a strict water diet for twenty-four hours, followed by the gradual addition of milk and semi-solids.

4. In chronic diarrhoea and chronic ulceration of the colon, the diet at first must be composed of fluids only, being augmented gradually by the cautious addition of simple solids. Above all, the diet must be non-irritating.

5. Mucous colitis should receive dietary treatment similar to that subscribed for functional constipation.

More severe cases of colitis necessitate a lessened amount of residue in the colon.

Cases of mild colitis may take practically a normal diet; fat should be restricted, however, and only a moderate amount of alcohol consumed.

—J. GORWILL, '35.

A CASE OF PARATHYROID TUMOUR

KEYNES & TAYLOR

Brit. Jour. Surg. 21; 81; 20, July, 1933

The author feels that too much stress has been laid on the changes in the skeleton system at the expense of the more general conditions of the patient and outlines an interesting case of tumour of the parathyroid in detail with a biochemical appendix included.

The symptoms became apparent in January, 1925, and progressed to July, 1932, in the following sequence: The initial symptoms were acute abdominal pain, persistent vomiting, considerable wasting and frequency of micturition and a small renal calculus was passed. Seven months later there was a recurrence of vomiting and albuminuria was discovered accompanied by gastroptosis and atony of stomach. Three months later there was pain in right knee joint and some stiffness and then symptoms were abated except periodic vomiting spells, until six months later, when there was diffuse bony swelling of right upper alveolar margin which was diagnosed as a typical osteoclastoma. On his next examination, a year and a half later, his general condition was unchanged but the right lower mandible showed a diffuse swelling. Almost six and a half years after the initial symptoms, the patient began to complain of aching in the bones of limbs, headaches, dyspnoea, lassitude and some time later suffered a spontaneous fracture of the right humerus and a diagnosis of parathyroid tumour was made.

At this time the patient displayed a pronounced degree of muscular atony, blue sclerotics, large head, enteroptotic chest, kyphosis and scoliocsis, bony swelling of ribs, prominent lax abdomen, bilateral coxa vera, etc. The X-rays showed a generalized osteitis fibrocystica. The author has a series of excellent plates showing the bony conditions, thickening of the calvarium, osteoporosis, etc.

In July, 1932, a cystic tumour was found below and behind the lower pole of the thyroid gland and was removed and the serum calcium fell abruptly and all symptoms rapidly abated, but there were a few premonitory signs of tetany for three days post operatively. Four months later patient was feeling better than he had ever felt in his life and the bones were undergoing recalcification.

In the biochemical appendix the author points out that diagnosis of hyper-parathyroidism depends on: (1) The X-ray appearance of the bones; and (2) an excessive loss of calcium from the body by way of the urine; (3) high blood calcium; and (4) low blood phosphorus.

There are charts showing the marked drop in blood calcium from 14.7 mg. per 100 cc. to 8.4 mg. per 100 cc. and the rise in blood phosphorus from 1.47 mg. to 2.6 mg. per 100 cc. post-operatively.

—C. P. MCCORMICK, '35.

NOTES OF A SERIES OF SPINAL CORD TUMOURS

GRANT, F. C.

Am. Jour. Surg. 23; 1; Jan., 1934

The author points out that although the diagnosis of advanced tumours within the vertebral canal is easy, only by early diagnosis and prompt removal can we hope for any cure. One characteristic these tumour cases all possess is slow and progressive interference with the function of the cord below, and the organs supplied by it.

From the series of 18 cases reported, distributed about equally along the cord, eight were benign fibroblastomas—a point well worth our notice.

Pain of nerve root distribution seemed to be the most constant early symptom and should be remembered in suspected sciatica, neuralgia, and gall-bladder disease. Increased pain on coughing or straining due to increased intracranial pressure and surge of cerebrospinal fluid down the canal is a point also of interest. As the lesion expands the cord is compressed and numbness and tingling below the tumor occurred in 14 of the cases.

As far as localizing the level of the tumor goes, appreciation of minor variances of response to the same temperature pain and touch at various levels of the cord along with a working knowledge of neuro-anatomy are the points of major importance.

Though the Brown-Sequard syndrome is usually due to spinal cord tumours, four of these cases showed the greatest loss of sensation to be ipsilateral with motor disurbances more pronounced on

the same side. In seventeen of the eighteen cases—hyperative reflexes, cionus or Babinski's sign were recorded on one or both sides.

As regards results from diagnosis and prompt removal the fibroblastomas perhaps gave the most gratifying results, five of the eight cases making apparently complete recoveries. As well in this series, three other extradural lesions, a hemaogioma, a fibriotic mass perhaps inflammatory in origin, and a chondroma have all made slow but complete recoveries, as well as one case of intradural glioma. Of the special aids to early diagnosis the Queckenstedt Test with determination of the amount of protein in the spinal fluid and secondly the injection of lipiodol or other roentgenographically opaque oil into the spinal canal are both of inestimable value.

Thus the problem of spinal cord tumours should be of interest, in that 50% of these 18 cases cited had made complete recoveries and the condition of about 28% has been definitely improved.

—L. G. PAYNE, '35.

THE EVOLUTION OF CANCER FROM BENIGN CYSTIC AND PAPILLOMATOUS LESIONS OF THE BREAST

EBERTS, E. M.

30; 1; 17; Can. Med. Assn. Jour., Jan., 1934

The object in presenting this paper is to stress the importance of the clinical and histological advances which have been made in the field of the breast cancer leading to the more frequent recognition of malignant disease in its early stages. While it is not known what percentage of cystic cases ultimately become malignant, it has been conservatively estimated that 20 per cent. of carcinomata of the breast have their beginnings in precursory cystic and papillomatous lesions.

Cheatle is quoted as arranging in pathological sequence the various stages and processes previously called "Schimmelbusch's Disease," "chronic cystic mastitis" or "chronic mastitis." Because of atrophy due to pressure, the lining epithelium of large single cysts seldom progresses to papillomatous or malignant change. The most menacing cystic state is that of fine nodularity; it is usually in these small cysts that carcinoma develops. Large cysts should be aspirated and the fluid histologically examined. A radical operation should be performed if cancer cells are found. Otherwise nothing except supervision is necessary. The finely nodular cysts should be be treated (a) in younger patients by wide segmental resection and examination of serial sections with secondary radical removal if malignant change is found (b) in older subjects by a primary radical operation or at least a complete mastectomy.

Papillomatous lesions in the breast are more frequent and even more likely to show malignant change. Clinically, Papillomatous disease may be diagnosed on the presence of an intermittent discharge of blood or bloody serum from the nipple, with or without pain, discomfort or a palpable mass. A clinical diagnosis of carcinoma can be made, if, in addition to the presence of a bloody discharge, on careful palpitation of the nipple, a thickening can be made out in the line of the duct from which the discharge has come. In any event the author believes that a breast from which such bleeding has occurred should be removed and that if the bleeding is associated with ductal thickening, the axilla should be dissected also.

—W. SMITHERS, '35.

HEARTBURN IN PREGNANCY

RAYNER, E. B.

Brit. Jour. Med. 3803, Nov. 25, 1933

Though this is not a serious condition, judged by its mortality, it is often very distressing to the patient. The author in studying non-pregnant patients complaining of heartburn noticed the frequent association of this symptom with hypoacidity. Without the aid of gastric analyses in the pregnant women he tried the therapeutic effect of acid. Using dilute hydrochloric acid in two doses of 10 to 20 minims, one taken during the meal and the other 20 minutes after, he obtained the following results:

The 45 cases fell into three groups:

(1) 34 cases relieved by acid but not by alkali.
(2) 5 cases relieved by small doses of alkali.
(3) 6 cases aggravated by acid and not relieved by alkali (two of these has previously been treated for peptic ulcer).

He suggests, as an explanation, that class (1) suffer from genuine hypoacidity, class (2) from mucous gastritis,

and class (3) from genuine hyperacidity.

These results justify at least the trial of acid in all cases of heartburn during pregnancy.

—P. M. YOUNG, '35.

CHOICE OF ANESTHESIA FOR ABDOMINAL OPERATIONS

SISE, LINCOLN F.

Anesthesia and Analgesia, 12; 5; 26, Oct., 1933

In the first place an anesthetic should be safe. Secondly, it should induce relaxation of the abdominal muscles. Anesthetics which satisfy the second requisite are not always safe for the patient. In consequence of this fact it is necessary to choose carefully the type of anesthetic which is to be administered.

Where considerable safety combined with a fair degree of relaxation is required, ether is satisfactory. It is successfully used in conjunction with a weaker anesthetic such as gas. When harmful effects are to be avoided regional anesthesia is a suitable measure. It provides excellent relaxation in the area of anesthesia. It is unfortunate that the field cannot usually be made extensive enough for most abdominal operations. Pure gas anesthesia is relatively free from harmful results, but in safe quantities does not produce the proper muscular relaxation. Gas, along with other measures, e.g. ether, is often used with good results. When a patient is in good condition and the optimum amount of relaxation is required, spinal anesthesia satisfies both requisites. In those cases which are considered bad risks for spinal anesthesia a combination of avertin, gas, regional anesthesia and ether has been successfully used in the Lahey Clinic, Boston, Mass.

To summarize, it may be said that the choice of an anesthetic is influenced by the condition of the patient and the type of operation to be performed. When an intricate surgical precedure is to be attempted on a patient in good condition spinal anesthesia is an excellent measure. In cases which are considered poor risks for the above and where prolonged upper abdominal surgery is to be done, combined anesthesia has proven satisfactory. Regional anesthesia or regional with gas is reserved for the poorest risks.

—J. M. JANES, '36.

FACTORS OF SAFETY IN SPINAL ANESTHESIA

RAGSDALE, H. C.

Med. Rec., 139; 1; 15 Jan., 1934

After its introduction spinal anesthesia fell into disrepute among many doctors because of the high mortality rate attendant upon its use. The toxicity of the drugs used and the inexpert use of the spinal puncture needle were the two main causes of its disfavor. The abandoning of cocaine and the discovery of stovaine and novocaine did much to advance the cause of this type of anesthesia, as did improvement in technique. Recently great development has taken place in this field due to improved clinical methods and practical experience rather than to ideas derived from test-tube and animal experimentation.

The following is an outline of a simple technique to give anesthesia below the diaphragm: As a preliminary medication give ephed. sulph. gr. ¾, 15 to 20 minutes before the intraspinal injection. Where there is marked hypertension, arteriosclerosis, or myocarditis, the dose is reduced to grs. ¼. The reason for this medication is that the anesthesia causes a loss of skeletal muscle tone and a decreased resistance in the peripheral vessels to the flow of blood by a fall in blood pressure. Also give morphine gr. ⅙ and atropine gr. 1/150.

The patient is placed on the table on his left side, the spinal column is sharply flexed, the skin in the region of the second and third lumbar vertebrae is sterilized and anesthetized. Using a 20 gauge spinal puncture needle, a perforation is made exactly in the midline at right angles to the saggital plane of the body between the second and third lumbar vertebrae. The needle is pushed until the "characteristic give" is felt as it pierces the dura. Four cc. of the cerebro-spinal fluid are withdrawn and mixed with 0.10 to 0.12 gm. of procaine in the ampule and transferred to a 10 cc. Luer syringe. The whole is slowly injected into the sub-arachnoid space. The needle is quickly withdrawn, the patient placed on his back and the head of the table lowered at an angle of ten to fifteen degrees. This position (Trendelenburg) should be maintained for at least six hours after the operation. This combats the fall of blood pressure already mentioned.

Anesthesia is usually completed by the time the patient is prepared and draped. It lasts on the average for an hour

usually. If the operation has to be prolonged small quantities of ether, nitrous oxide or ethylene will carry the patient along.

The value of spinal anesthesia lies in the complete relaxation resulting in the anterior abdominal wall and the viscera. This means a saving in time and the doing away with many retractors and lap sponges. Postoperatively there is no disturbance of the respiratory or genitourinary systems. Fluids and nourishments can be given more quickly.

While there are no absolute contraindications to its use, it is not wise to give spinal anesthesia to (a) very neurotic or nervous individuals (b) those who prefer general anesthesia, (c) those who through heresay have been prejudiced against it.

—J. M. JANES, '36.

THE OCCUPATIONAL HISTORY AND HOW TO MAKE IT

SAYERS, R. R.

Am. Rev. Tuberc., 29: 61, 1934

An occupational history is made to determine the relationship of a person's physical condition to his work. Although insignificant in many industries, it is very important when investigating the miner, the foundryman or the stone worker, for one must determine the silicosis hazard by determining whether or not there is any silicious dust concerned.

It is only recently that examiners have been more scrupulous in this measure. In this report the doctors made careful observations with an engineer to classify the workers' jobs and to determine the individual hazard concerned with each.

It seems that the examiner is able to determine more from the occupational history when he familiarizes himself with each occupation, whether through personal observation or indirectly from the workers, employers or the literature.

—R. A. CHRISTIANSON, '36.

PATHOGENESIS OF ACUTE SILICOSIS

POMERANG, R.

Radiology 21: 556; 1933

A study of five cases autopsied from a series of a hundred cases examined and a short resumé of experimental data using guinea pigs and rats is reported.

The silica dust was analyzed as 98.5 per cent. free silica. The X-ray and microscopic findings are presented of a large series of rapidly developed interstitial fibrosis. This process is considered a defence reaction on the part of the body against the toxic properties of the silica which causes a loss of vital lung capacity. Fibrosis was also shown to be progressive and irreparable, as was shown by serial X-rays on the cases after they had relinquished their siliceous occupation.

The microscopic and X-ray findings show that exposure to silica dust may reactivate an old tuberculosis which may complicate the interstitial fibrosis, but must not be considered the primary factor.

—R. A. CHRISTIANSON, '36.

MEDICINAL TREATMENT OF THE COMMON COLD

DIEHL, H. S.

Jour. Am. Med. Assn., 101; 26; 2042. Dec., 1933

In the work of the Students Health Service of the University of Minnesota, there were studied 1,039 cases of acute coryza, 262 cases of subacute or chronic colds, 114 cases of influenza and 53 cases of acute pharyngitis. The drugs used included opium and certain alkaloid derivatives of it, acetylsalicylic acid, acetphenidin-caffeine and sodium bicarbonate. Lactose tablets were used as controls.

Taking into account the percentage of cases showing definite improvement, toxicity and danger of habituation, a combination of codeine and papaverine seemed most efficacious in the treatment of acute coryza. Sodium bicarbonate, acetylsalicylic acid, alone or in combination, yielded little better results than the control lactose tablets. In the treatment of subacute or chronic colds, influenza or acute pharyngitis none of the tested drugs appeared to be of worthwhile value.

—G. I. SAWYER, '36.

APPEARANCE PLUS.

"The dignity of a physician requires that he should look healthy and as plump as nature intended him to be; for the common crowd consider those who are not of this excellent bodily condition to be unable to take care of others. Then he must be clean in person, well-dressed and annointed with sweet-smelling unguents that are not in any way suspicious. This, in fact, is pleasing to patients. The prudent man must also be careful of certain moral considerations—not only to be silent but also of great regularity of life, since thereby his reputation will be greatly enhanced. He must be a gentleman in character, and, being this he must be grave and kind to all. In every social relation he will be fair, for fairness must be of great service. The intimacy also between physician and patient is close. Patients, in fact, put themselves into the hands of their physician, and at every moment he meets women, maidens and possessions very precious indeed. So toward all these self-control must be used. Such, then, should the physician be, both in body and in soul." — *Hippocrates.*

INCREASE IN MORTALITY FROM ALMOST ALL DISEASES.

The statistics of the public health service furnish an instructive picture of the morbidity and mortality as they have developed in recent years under the influence of the prevailing economic conditions. It is indisputable that the figures bearing on these factors show a constant increase. If one compares the mortality figures of 1925 with those of 1930, one notes in diseases of the nervous system an increase of 340 deaths; in pneumonia, 4,000; in diabetes, more than 2,000; in heart disease, more than 6,000; in neoplasms, even 8,000. It is held that the cause for the much higher mortality from pneumonia as compared with the prewar period lies in the reduced resistence of a large portion of the population because of defective nutrition. In explanation of the disorders of the circulatory organs, in addition to defective nutrition attention is called to the psychic factor represented by the manifold worries, and to the present tendency to carry devotion to sport to the stage of exhaustion. Possibly improved diagnosis would explain the "alleged" increase of diabetes. As a parallel observation, one may take the supposed increase of cancer, which may be found to be due chiefly to the perfected means of diagnosis. At present, more patients are going to physicians, and they are seeking a physician in earlier stages of disease. In tuberculosis alone, the number of deaths has been reduced by 10 per cent., during the quinquennium, as a result of the prophylaxis effected by the social aid stations for the tuberculosis and the extensive early therapeutic aid afforded by sanatoriums and hospitals. — A. M. A. Journal, P. 932.